

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2003-049320

(43)Date of publication of application : 21.02.2003

(51)Int.Cl.

D01F 6/04

(21)Application number : 2001-241118

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(22)Date of filing : 08.08.2001

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(54) HIGH-STRENGTH POLYETHYLENE FIBER

(57)Abstract:

PROBLEM TO BE SOLVED: To provide high-strength polyethylene fibers having excellent mechanical strength and modulus of elasticity and the uniform fibers in all single fiber finenesses and applicable to various kinds of uses without fusion and contact bonding among the single fibers.

SOLUTION: The high-strength polyethylene fibers comprise a polyethylene having $\leq 300,000$ weight-average molecular weight, ≤ 4.0 ratio of the weight-average molecular weight to the number-average molecular weight, ≥ 15 cN/dtex strength and 0.01-3.0 branched chains based on 1,000 carbon atoms of the main chain in a fibrous state. Furthermore, the high-strength polyethylene fibers have the branched chains which are $\geq 5C$ alkyl groups, ≥ 500 cN/dtex modulus of elasticity and $\leq 2.0\%$ ratio of defective dispersion yarns when converted into cut fibers.

LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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